Staff Report: Dean Street Viaduct – Valley, Federal Hill – Wards 12 and 13 (For Action)
Presented at February 20, 2019 BPAC meeting

Project Background
The Rhode Island Department of Transportation is planning some work on the Dean Street Viaduct, which has been previously identified by the Commission as a priority for the city’s bike network. This will be a conceptual level review of the project and will be the first of two reviews before the Commission.

In February 2015, BPAC held a public hearing to identify residents’ priorities for bicycle and pedestrian infrastructure citywide, and the Dean St Viaduct emerged as one of the top four priorities at that time. In November 2017, BPAC had a conceptual discussion about how improved bicycle and pedestrian connections on the Dean St corridor between Atwells Avenue and Smith Street might be improved. In August 2018, BPAC reviewed resulting conceptual plans the City developed to integrate improved bicycle and pedestrian facilities onto the Dean St corridor between Atwells Avenue and Smith Street. Those plans squeezed in a minimum-width shared use path in the existing bridge footprint with the existing lane configuration by means of removing the median and connecting bridge structures. The Commission recommended vehicular travel lanes be removed to provide improved conditions for the safety and urban character of the street.

That same month of August 2018, the state’s Bicycle Mobility Plan released a final draft, which identified the Dean Street Viaduct within the 5th most important bicycle connection in the entire state.

In November 2018, the City of Providence confirmed that the RI Department of Transportation was working on a project to repair the Dean Street Viaduct over US-6, the Amtrak corridor, and Harris Ave, between West Exchange Street and Kinsley Ave. The City sought to coordinate with DOT to efficiently achieve both jurisdictions’ goals for the bridge. In January 2019, DOT proposed a major amendment to the State Transportation Improvement Program reducing funds for bicycle and pedestrian projects, claiming among other things that bridge and paving projects would integrate bicycle and pedestrian facilities. In February 2019, the RI Department of Transportation shared 30% plans for the bridge with the City of Providence.
Project Description

- The primary purpose of the DOT project is maintenance of the structural components on the underside of the bridge.

- The project would also make changes to the surface of the bridge, including repaving but most notably removing a portion of the median to create a left-turn lane for northbound vehicular traffic to turn onto US-6 westbound. A second entrance to this on-ramp would be built immediately south of the current entrance, perpendicular to Dean Street.

- There are no bicycle facilities and no improvements to pedestrian safety included in the DOT plans for the Viaduct.

Staff Recommendations

- At a minimum, the work on the bridge should incorporate the two-way shared use path and associated features presented for the bridge at the August 2018 meeting of BPAC, since it is planned to connect the two bridge structures as part of this work.

- The Department of Transportation should prioritize how to reduce vehicular travel speeds and number of vehicular travel lanes on the Viaduct, perhaps by conducting a 4-to-3 road diet to provide the desired turn lane.

Respectfully submitted by Alex Ellis.
DEPARTMENT OF TRANSPORTATION

STATE HIGHWAY

DEAN STREET BRIDGE NO. 776
BRIDGE REHABILITATION
STA 10+96.25 TO 15+94.62

CITY OF PROVIDENCE
COUNTY OF PROVIDENCE

R.I. CONTRACT NO.  F.A. PROJECT NO.

PAVEMENT STRUCTURE
2" CLASS 9.5 HMA SURFACE COURSE
3" CLASS 19.0 HMA BASE COURSE
12" GRAVEL BORROW SUBBASE COURSE

0.09 MILES

Scales of Drawings

BASE OF LEVELS
Providenza Mean High Water
Rhode Island State Plane Coordinate System, NAD83
DEAN STREET ALIGNMENT DATA

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RAMP NW ALIGNMENT DATA

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DEAN STREET BRIDGE NO. 776
DEPARTMENT OF TRANSPORTATION
PROVIDENCE
RHODE ISLAND
LOCATION DATA

RHODE ISLAND DEPARTMENT OF TRANSPORTATION
BRIDGE REHABILITATION
DEAN STREET BRIDGE NO. 776
PROVIDENCE R ]
DEAN STREET
STA 16+34.60 TO 17+84.60
TEMPORARY CROSSOVER CONSTRUCTION
(STAGE 1)

DEAN STREET
STA 16+34.60 TO 17+84.60
TEMPORARY CROSSOVER RESTORATION
(STAGE 4)

PAVEMENT NOTES:

2" CLASS 9.5 HMA
2" CLASS 9.5 HMA
2" CLASS 9.5 HMA
5" TEMP. HMA (ITEM 410.1000)
12" GRAVEL BORROW SUBBASE COURSE
MICRO MILLING (DEPTH)

GENERAL NOTES:

REFER TO BRIDGE PLAN FOR DETAILS OF CONSTRUCTION.
PREVIEW STA 11+06.31 TO STA 15+84.62.
EXISTING SIGNS

ROAD WORK AHEAD
FINES DOUBLED
ROAD WORK AHEAD
END ROAD WORK

EXPRESSWAY 48"X48" STANDARD 36"X36"
EXPRESSWAY 48"X24" STANDARD 36"X18"
FINES DOUBLED
ROAD WORK AHEAD
END ROAD WORK

RHODE ISLAND DEPARTMENT OF TRANSPORTATION
BRIDGE REHABILITATION
DEAN STREET BRIDGE NO. 776
PROVIDENCE RHODE ISLAND

TEMP. TRAFFIC CONTROL PLAN
ADVANCE SIGNING
TRAFFIC CONTROL STAGING NOTES:

**STAGE 1:**
- **Construction:**
  - Remove raised median on bridge and pour new deck section
  - Construct temporary median crossover on Dean Street, north of bridge
  - Install temporary traffic signals at Dean Street & US 6 ramps and at Dean Street & West Exchange Street for Stages 2 & 3
  - Complete girder painting on Spans 3 & 4 over Amtrak (nighttime work)
  - Complete girder painting on Spans 5 & 6 over Harris Avenue (daytime work)
  - Complete girder painting on Spans 1 & 2 over US 6 (nighttime work)

- **Traffic:**
  - Long-term closure of inside lanes on Dean Street NB & SB
  - Daily lane two-way flagging operation on Harris Avenue

**STAGE 1A, 1B & 1C (NIGHTTIME WORK WITHIN STAGE 1):**
- **Construction:**
  - Complete girder painting on Spans 1 & 2 over US 6
  - Complete girder painting on Spans 3 & 4 over Amtrak (nighttime work)

- **Traffic:**
  - Cross Dean Street traffic over onto NB lanes to provide two-way traffic (one lane in each travel direction)
  - Close US 6 WB entrance ramp from Dean Street SB (posted detour)
  - Shift US 6 WB lanes towards median

**STAGE 2:**
- **Construction:**
  - Construct bridge widening and retained wall & expansion for addition of US 6 WB entrance ramp from Dean Street NB
  - Construct deck overlay on west half of bridge

- **Traffic:**
  - Cross Dean Street traffic over onto US 6 lanes to provide two-way traffic (one lane in each travel direction)
  - Close US 6 WB entrance ramp from Dean Street SB (posted detour)
  - Shift US 6 WB lanes back to original position

**STAGE 3:**
- **Construction:**
  - Construct deck overlay on east half of bridge, including exit ramp from I-95 NB to Providence Place
  - Cross Dean Street traffic over onto US 6 lanes to provide two-way traffic (one lane in each travel direction)
  - Close US 6 WB exit ramp to Providence Place for minimum duration required to complete deck overlay (posted detour)
  - Open US 6 WB entrance ramp from Dean Street SB

- **Traffic:**
  - Cross Dean Street traffic over onto US 6 lanes to provide two-way traffic (one lane in each travel direction)
  - Close US 6 WB exit ramp to Providence Place for minimum duration required to complete median restoration
  - Open new US 6 WB entrance ramp from Dean Street SB

**STAGE 4:**
- **Construction:**
  - Restore Dean Street temporary median crossover to original condition
  - Remove temporary traffic signals
  - Complete closure of inside lanes on Dean Street NB & SB for minimum duration required to complete median restoration
  - Open new US 6 WB entrance ramp from Dean Street SB

- **Traffic:**
  - Continuous closure of inside lanes on Dean Street NB & SB for minimum duration required to complete median restoration
  - Open new US 6 WB entrance ramp from Dean Street SB

DEAN STREET
STAGE 1

DEAN STREET
STAGE 2

DEAN STREET
STAGE 3
TRAFFIC CONTROL STAGING NOTES:

STAGE 1:
- **Construction:**
  - Remove raised median on bridge and pour new deck section
  - Construct temporary median crossover on Dean Street, north of bridge
  - Install temporary traffic signals at Dean Street & US 6 ramps and at Dean Street & West Exchange Street for Stages 2 & 3
  - Complete girders painting on spans 3 over Amtrak (nighttime work)
  - Complete girders painting on spans 4 over Harris Avenue (daytime work)

- **Traffic:**
  - Long-term closure of inside lanes on Dean Street NB & SB
  - Daily one lane two way flagging operation on Harris Avenue

STAGE 1A, 1B & 1C (nighttime work within Stage 1):
- **Construction:**
  - Complete girders painting on spans 1 & 2 over US 6

STAGE 2:
- **Construction:**
  - Construct bridge widening and retained wall & expansion for the addition of US 6 WB entrance ramp from Dean Street SB
  - Construct deck overlay on west half of bridge
  - Complete Dean Street temporary crossover on US 6 access to provide two way traffic (one lane in each direction)
  - Close US 6 WB entrance ramp from Dean Street SB (posted detour)

- **Traffic:**
  - Cross Dean Street traffic over onto NB lanes to provide two way traffic (one lane in each direction)
  - Close US 6 WB entrance ramp from Dean Street SB (posted detour)
  - Shift US 6 WB lanes towards median

STAGE 3:
- **Construction:**
  - Construct deck overlay on east half of bridge, including exit ramp from I-95 NB to Providence Place

- **Traffic:**
  - Cross Dean Street traffic over onto SB lanes to provide two way traffic (one lane in each direction)
  - Close US 6 SB exit ramp to Providence Place for minimum duration required to complete deck overlay (posted detour)
  - Open US 6 SB exit ramp from Dean Street SB
  - Shift US 6 SB lanes back to original position

STAGE 4:
- **Construction:**
  - Restore Dean Street temporary median crossover to original condition
  - Remove temporary traffic signals

- **Traffic:**
  - Continuous closure of inside lanes on Dean Street NB & SB for minimum duration required to complete median restoration
  - Open new US 6 WB entrance ramp from Dean Street SB
LEGEND:

- WORK ZONE
- DIRECTION OF TRAVEL
- TRAFFIC CONTROL DRUM
- TUBULAR MARKER
- TYPE S PLASTIC PIPE BARRIERS
- TEMPORARY TRAFFIC CONTROL, non-reflective markers
- NOTES OTHERWISE
- FLASHING ARROW BOARD
- PRECAST MEDIAN TEMPORARY BARRIER FOR TRAFFIC CONTROL (ANCHORED)
- IMPACT ATTENUATOR
- WORK VEHICLE WITH TEMPORARY IMPACT ATTENUATOR
- TEMPORARY PAVEMENT MARKING (TAPE) - 4 INCH YELLOW
- TEMPORARY PAVEMENT MARKING (TAPE) - 4-INCH DOUBLE YELLOW
- TEMPORARY PAVEMENT MARKING (TAPE) - 6 INCH WHITE
- TEMPORARY PAVEMENT MARKING (TAPE) - 12-INCH WHITE

YIELD
R1-2
36"X31"
WO3-2
WO4-1R

SHEET 1 OF 1
REFER TO STAGE 1 TEMP. TRAFFIC CONTROL PLANS FOR CONTINUOUS LANE CLOSURES ON DEAN ST ALREADY IN PLACE.

MATCH LINE TO SHEET 2 OF 2.
LEGEND:

- WORK ZONE
- DIRECTION OF TRAVEL
- TRAFFIC CONTROL DRUM
- TUBULAR MARKER
- TYPE III PLASTIC PIPE BARRICADE
- TEMPORARY TRAFFIC CONTROL SIGN (48"X48" UNLESS NOTED OTHERWISE)
- FLASHING ARROW BOARD
- PRECAST MEDIAN TEMPORARY BARRIER FOR TRAFFIC CONTROL (UNANCHORED)
- IMPACT Attenuator
- WORK VEHICLE WITH TEMPORARY IMPACT ATTENUATOR
- TEMPORARY PAINT MARKING (TAPE) - 4 INCH YELLOW
- TEMPORARY PAINT MARKING (TAPE) - 4-INCH DOUBLE YELLOW
- TEMPORARY PAINT MARKING (TAPE) - 6 INCH WHITE
- TEMPORARY PAINT MARKING (TAPE) - 12-INCH WHITE
TEMP. TRAFFIC CONTROL PLAN
STAGE 2
DEAN STREET BRIDGE NO. 776
PROVIDENCE, RHODE ISLAND

LEGEND:

WORK ZONE

DIRECTION OF TRAVEL

TEMP. TRAFFIC DRUM

TUBULAR MARKER

TYPE III PLASTIC PIPE BARRICADE

TEMPORARY TRAFFIC CONTROL SHOWN UNTIL UNLESS NOTED OTHERWISE

FLASHING ARROW BOARD

PRECAST MEDIAN TEMPORARY BARRIER FOR TRAFFIC CONTROL

LEGACY TEMPORARY TRAFFIC CONTROL SIGN (48"X48" UNLESS NOTED OTHERWISE)

FLASHING ARROW BOARD

PRECAST MEDIAN TEMPORARY BARRIER FOR TRAFFIC CONTROL

IMPACT ATTENUATOR

WORK VEHICLE WITH TEMPORARY IMPACT ATTENUATOR

TEMPORARY PAVEMENT MARKING (Tape) - 4 INCH YELLOW

TEMPORARY PAVEMENT MARKING (Tape) - 4-INCH DOUBLE YELLOW

TEMPORARY PAVEMENT MARKING (Tape) - 6-INCH WHITE

TEMPORARY PAVEMENT MARKING (Tape) - 12-INCH WHITE

R3-1

24"X24"

R3-2

24"X24"

WO1-4R

36"X36"

WO4-3R

36"X36"

W20-55A

R11-2L

CLOSED LANE

48"X30"
NOTE: BUILDING CORNERS AS SHOWN REPRESENT ROOF LINES AS COLLECTED FROM AERIAL PHOTOGRAPHY.
RAMP CLOSED

LEGEND:

WORK ZONE

DIRECTION OF TRAVEL

TUBULAR MARKER

TYPE A PLASTIC PIPE MARKER/CHANNEL

TEMPORARY TRAFFIC CONTROL DRUM (3 FT RAMP UNLESS NOTED OTHERWISE)

FLASHING ARROW BOARD

PERMANENT MEDIAN TEMPORARY BARRIER FOR TRAFFIC CONTROL (ANCHORED)

IMPACT ATTENUATOR

WORK VEHICLE WITH IMPACT ATTENUATOR

TEMPORARY PAVEMENT MARKING (TAPE) - 4 INCH YELLOW

TEMPORARY PAVEMENT MARKING (TAPE) - 4-INCH DOUBLE YELLOW

TEMPORARY PAVEMENT MARKING (TAPE) - 6 INCH WHITE

TEMPORARY PAVEMENT MARKING (TAPE) - 12-INCH WHITE

TEMPORARY PAVEMENT MARKING (TAPE) - 36"X36" AHEAD

TEMPORARY PAVEMENT MARKING (TAPE) - 4-8 INCH DOUBLE WHITE

DEPARTMENT OF TRANSPORTATION

RHODE ISLAND

BRIDGE REHABILITATION

DEAN STREET BRIDGE NO. 776

PROVIDENCE

TEMP. TRAFFIC CONTROL PLAN

STAGE 3

17+00

18+00

87+00

88+00

140' TAPER

220' SHIFT

36"X36" (ON EXISTING LIGHT POLE)

36"X36" (ON EXISTING LIGHT POLE)
EXISTING SIGNS

HI

DETOUR PLAN

DETOUR

W20-2A

M1-4

24"X24"

EST

24"X12"

M3-4

DETOUR

TO

24"X12"

M4-5

DETOUR

DEAN ST SB ENTRANCE RAMP TO US 6 WB

IN PLACE DURING STAGE 2

DETOUR

M4-8

24"X12"

M4-8A

DETOUR END

24"X18"

21"X21"

M6-1

21"X21"

M5-1L

21"X21"

M6-1

21"X21"

M5-1R

21"X21"

M6-1

SOUTH

WEST

R.I.

10

TO

COVER

SOUTH

24"X12"

M3-3

R.I.

10

M1-5

24"X24"

21"X21"

M6-2

DETOUR ROUTE

RAMP CLOSURE
RHODE ISLAND DEPARTMENT OF TRANSPORTATION

BRIDGE REHABILITATION
DEAN STREET BRIDGE NO. 776

PROVIDENCE_TEMP. TRAFFIC CONTROL PLAN

DETOUR ROUTE

AHEAD

DETOUR

M4-5
24" X 12"

M4-8
24" X 12"

M4-8A
DETOUR END

24" X 18"

21" X 21"

M6-1
21" X 21"

M5-1L
21" X 21"

M5-1R
21" X 21"

M6-2
21" X 21"

RAMP CLOSURE

DETOUR ROUTE

21" X 21"

M5-2R

Providence Place
1. ALL CONCRETE REPAIR WORK SHALL BE IN ACCORDANCE WITH THE AASHTO STANDARDS FOR MATERIALS AND METHODS OF CONSTRUCTION AND THE SPECIAL PROVISIONS CONTAINED IN THE CONTRACT SPECIFICATIONS.

2. ALL LOOSE AND OR CONCRETE SHALL BE REMOVED TO THE LIMIT SHOWING ON THE CHARTES OR TO A SOUND CONCRETE SURFACE AS APPROVED BY THE ENGINEER. IF THE CONCRETE IS IN THE TOLERANCE LIMIT OF THE CONCRETE TO BE REPAIRED.

3. IN AREAS WHERE CONCRETE STEEL IS FOUND TO BE SUBSIZED BY DECOMPOSITION OF THE REINFORCEMENT, THE AREA OF CONCRETE DAMAGE SHALL BE REPAIRED TO INCLUDE ALL DECOMPOSITION CONCRETE AND NOT LESS THAN 2 INCHES OF COMPACTED異常コンクリート. THE DECISION OF THE CONTRACTOR SHALL BE IN DETERMINING THE CONDITIONS OF THE CONCRETE TO BE REPAIRED.

4. AFTER REMOVAL HAS BEEN COMPLETED, ALL REMAINING MATERIALS SUCH AS NURSES, REINFORCEMENT, STEEL OR CONCRETE SHALL BE REJECTED FROM THE CONTRACT BY SUBMITTING TO THE CONTRACTOR FOR ACCEPTANCE.

5. THE CONCRETE REPAIRING AND REPAIRING CONCRETE MAY BE USED AS PART OF THE MATERIALS FOR THE PURPOSE OF REPAIRING CONCRETE OR IN THE DETAIL OF THE REPAIRING CONCRETE FOR ANY DEFECTIVE CONSTRUCTION UNLESS THE CONTRACTOR HAS AGREED TO THE CONTRACTOR.

6. ALL REMOVED STEEL AND SCAFFOLDING FROM THE AFFECTED AREA SHALL BE REMOVED FROM THE AFFECTED AREA TO THE CONTRACTOR FOR ACCEPTANCE.

7. THE CONTRACTOR SHALL PROVIDE A PLOWED AREA TO MATCH THE AFFECTED CONCRETE REPAIR

8. ALL STEEL CONCRETE REPAIRS SHALL BE STRENGTHENED WITH THE USE OF CONCRETE REPAIRING MATERIALS AND METHODS OF CONSTRUCTION AS APPROVED BY THE CONTRACTOR.
1. All demolition shall be in accordance with code regulations, removal and disposal portions of exiting superstructure of the special provisions of the specifications.

2. Certificates have been developed from original construction drawings and are shown for informational purposes only, the contractor is to verify all specification quantities thereon.

3. Removal and disposal of hazardous concrete pavement shall be in accordance with RCRA regulations, and removal and disposal concrete removed during project.

4. The contractor shall leave the necessary elevation grades along outside edges of the existing concrete deck and removing hazardous materials, and asphalt and unpaved materials, any damage detected to the deck surface shall be repaired to the satisfaction of the Engineer at no additional cost to the State.

5. Contractor to use extreme caution during demolition operations, not to damage existing pedestrian, sewer, storm, sanitary, electrical, and telecommunications shall to repair.

6. All work shall be coordinated such that there is no interference with existing and new structures.

7. The contractor shall exercise extreme care so as to avoid damage to existing structures designed to remain at final structure is damaged as a result of the contractor's operation, it shall be repaired at no additional cost to the State.

8. It is the contractor's responsibility to record any damage to the utilities, drainage and other structures.

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